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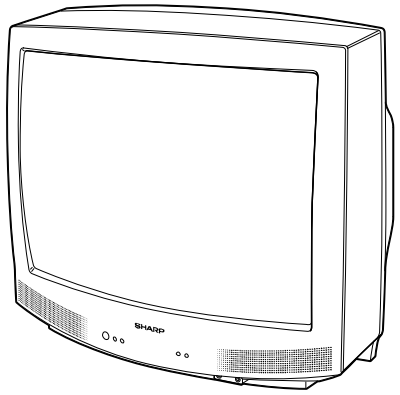
SHARP 26MR30 SERVICE MANUAL

Table of Contents

Table of Contents
electrical specifications
sharp corporation
service manual
IMPORTANT SERVICE SAFETY PRECAUTION
safety notice
LOCATION OF USER'S CONTROL
INSTALLATION AND SERVICE INSTRUCTIONS
service mode
rf agc adjustment
screen adjustment
white balance adjustment
service adjustment
CHASSIS LAYOUT
BLOCK DIAGRAM
SCHEMATIC DIAGRAMS
PRINTED WIRING BOARD ASSEMBLIES
REPLACEMENT PARTS LIST
crt unit
cabinet parts
miscellaneous parts
supplied accessories
packing parts
PACKING OF THE SET
Other ManualsLib Projects

SHARP SERVICE MANUAL

S21O526MR30



COLOR TELEVISION

Chassis No. SN-010

MODEL 26MR30

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

CONTENTS

Page

- ELECTRICAL SPECIFICATIONS 1
- IMPORTANT SERVICE SAFETY PRECAUTION 2
- LOCATION OF USER'S CONTROL 4
- INSTALLATION AND SERVICE INSTRUCTIONS 5
- CHASSIS LAYOUT 11
- BLOCK DIAGRAM 12
- SCHEMATIC DIAGRAMS 13
- PRINTED WIRING BOARD ASSEMBLIES 17
- REPLACEMENT PARTS LIST 22
- PACKING OF THE SET 29

ELECTRICAL SPECIFICATIONS

POWER INPUT ..... 120 V AC 60 Hz
POWER RATING ..... 95 W
PICTURE SIZE ..... 2,032cm^2 (315sq inch)
CONVERGENCE ..... Magnetic
SWEEP DEFLECTION ..... Magnetic
FOCUS ..... Hi-Bi-Potential Electrostatic
INTERMEDIATE FREQUENCIES
  Picture IF Carrier Frequency ..... 45.75 MHz
  Sound IF Carrier Frequency ..... 41.25 MHz
  Color Sub-Carrier Frequency ..... 42.17 MHz
  (Nominal)
AUDIO POWER
  OUTPUT RATING ..... 1.5W (at 10% distortion)
SPEAKER
  SIZE ..... 8 cm (Round)
  VOICE COIL IMPEDANCE ..... 32 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE
  VHF/UHF ..... 75 ohm Unbalanced
TUNING RANGES
  VHF-Channels ..... 2 thru 13
  UHF-Channels ..... 14 thru 69
  CATV Channels ..... 1 thru 125
  (EIA, Channel Plan U.S.A.)

Specifications are subject to change without prior notice.

SHARP CORPORATION

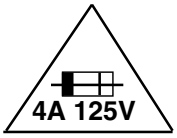
This document has been published to be used for after sales service only.
The contents are subject to change without notice.

IMPORTANT SERVICE SAFETY PRECAUTION

■ **Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:**

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulating material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.



CAUTION: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A-125V FUSE.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation, if the high voltage is as specified in the "High Voltage Check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in the glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter.
   The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and;also, under certain conditions, may produce radiation in exceeding of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
   Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

IMPORTANT SERVICE SAFETY PRECAUTION

(Continued)

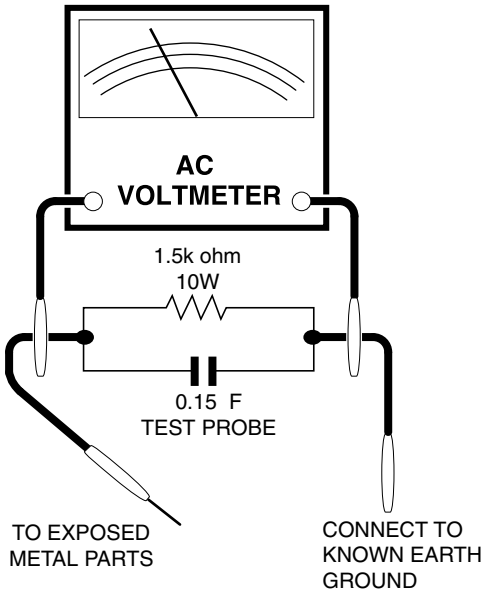
BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators and etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 120 volt AC outlet, (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon and etc.) and measure the AC voltage drop across the resistor.
  AII checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)
  Any current measured must not exceed 0.5 milliamp. Any measurements not within the limits outlined above indicate of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



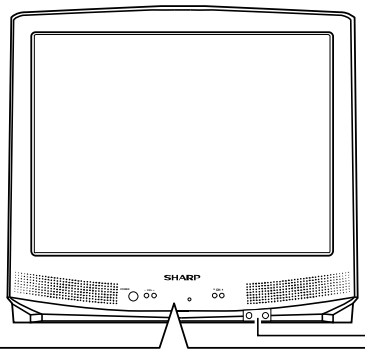
SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

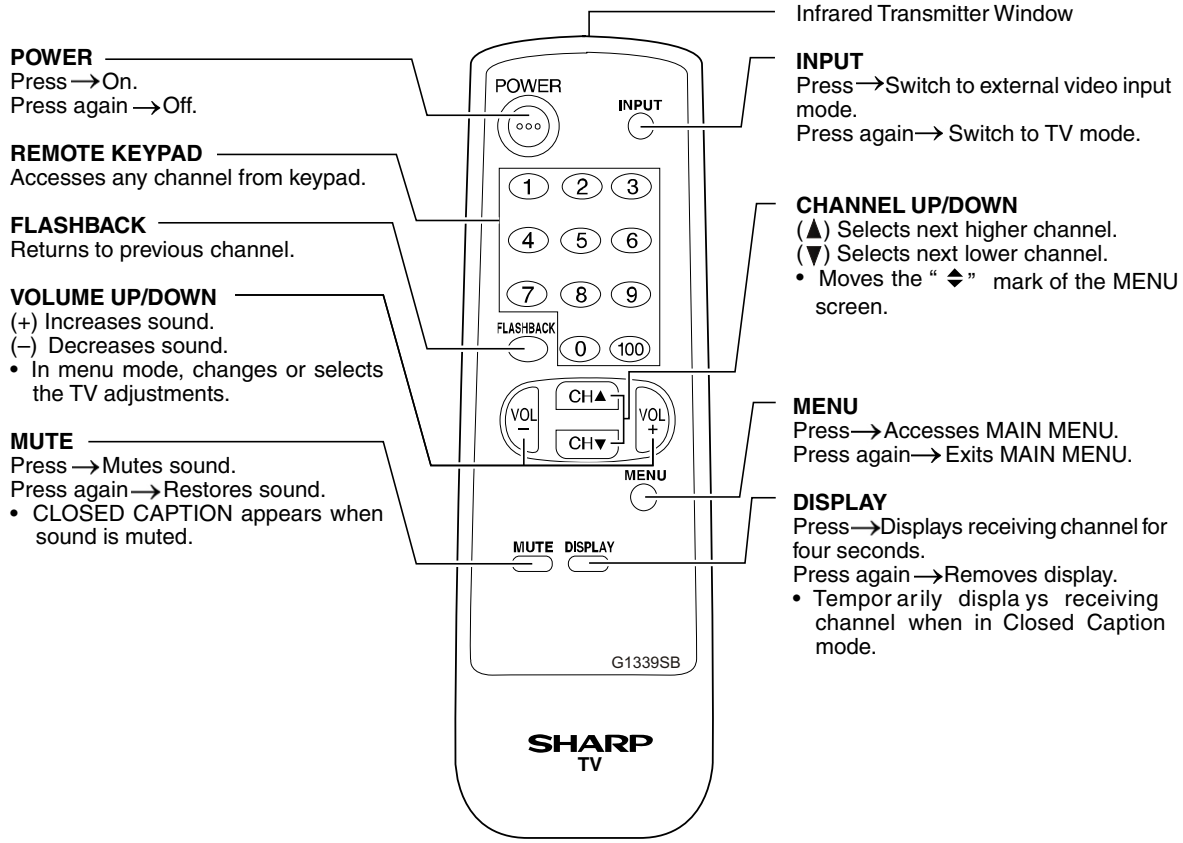
For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

LOCATION OF USER'S CONTROL

Front Panel



Basic Remote Control Functions



INSTALLATION AND SERVICE INSTRUCTIONS

Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdrivers or TV alignment tools.
(2) Before performing adjustments, the TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

X-RADIATION PROTECTOR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, B+ system, test the X-Radiation protection circuit to ascertain proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Receive a good local channel.
4. Connect a digital voltmeter to TP653 and make sure that the voltmeter reads 21.9 ±1.4V.
5. Apply external 27.9V DC at TP653 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord and make a short circuit between TP651 and TP652. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with a strong air signal or a properly tuned in test signal.
3. Enter the service mode and select the service adjustment "S03" and Bus data "01" (Y-mute on).
4. The voltage should be approximately, 30.5kV (at zero beam).
   If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

For adjustments of this model, the bus data is converted to various analog signals by the D/A converter circuit.

Note: There are still a few analog adjustments in this series such as focus and master screen voltage. Follow the steps below whenever the service adjusment is required.

To enter the service mode and exit service mode.

While pressing the Vol-up and Ch-up buttons at the sametime, plug the AC cord into a wall socket.
Now, the TV set is switched on and enters the service mode.
To exit the service mode, turn the television off by pressing the power button.

1. Service mode.

Before putting unit into the service mode, check that customer adjustments are in the normal mode. Use the reset function in the video adjustment menu to ensure customer control are in their proper (reset) position.

2. Service number selection.

In the service mode, you will see the window screen as window ①. There are 3 adjustment categories ② DEF, ③ SIGNAL, ④ FIX VALUE as show in **Figure A**.

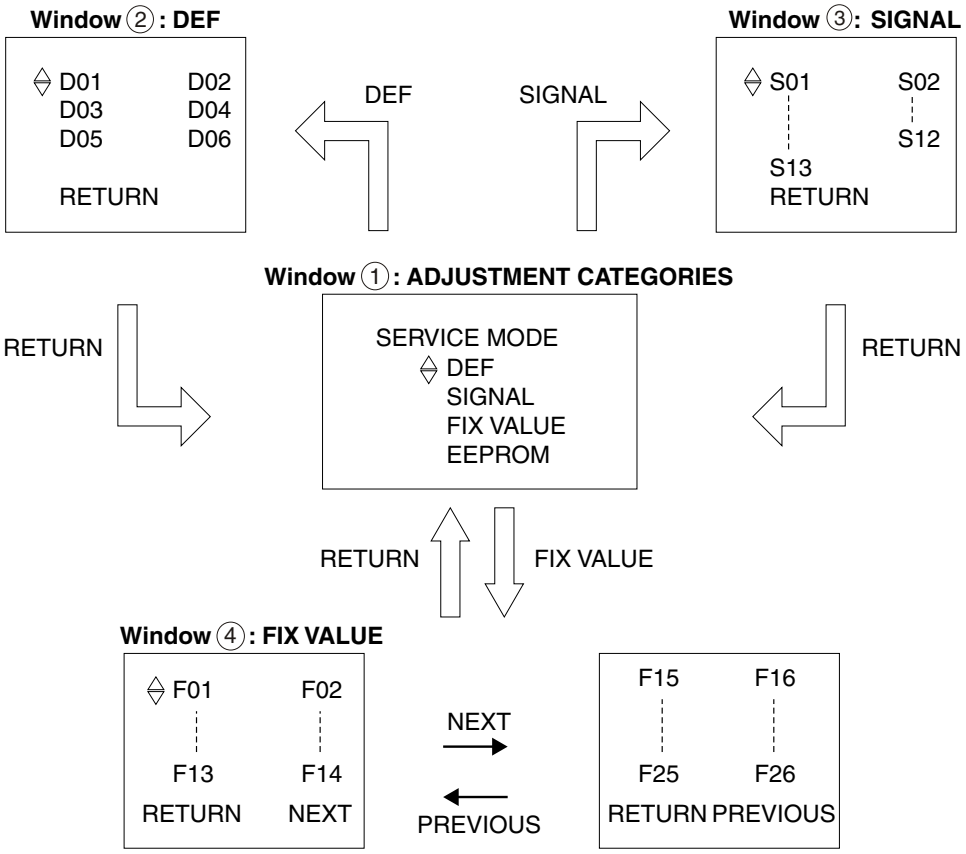


Figure A: ADJUSTMENT CATEGORIES

Press CH UP/DOWN button for selection and enter by VOL UP or VOL DOWN.
Press CH UP/DOWN button to select the adjustment item and VOL UP/DOWN to adjust the data number for each categories.
(OSD disturbance can be erased by R/C display key)
(Note: EEPROM-factory used only)

Below are the adjustments ranges and initial values for FIX VALUE category.

FIX VALUE

SERVICE POSITION	ADJUST ITEM	DATA		
		RANGE	INITIAL VALUE	(Hex)
F01	OPTION 1	00-FF	B0	A0
F02	OPTION 2	00-FF	04	0C
F03	E-SAVE	00-3F	23	2A
F04	TUNER SETUP	00, 01	00	00
F05	R-TONE RD	00-7F	19	03
F06	R-TONE BD	00-7F	00	7C
F07	B-TONE RD	00-7F	00	00
F08	B-TONE BD	00-7F	12	04
F09	FM LEVEL	00-1F	0C	0C
F10	AFC GAIN	00, 01	00	00
F11	G DRIVE	00, 0F	00	0F
F12	FBT BLK SW	00, 01	01	01
F13	V COMP	00-07	07	07
F14	OSD CONT	00-03	02	01
F15	SHARPNESS	00-3F	19	*1
F16	FLT SYS	00-07	00	01
F17	KILLER OP	00-07	04	02
F18	Y PRI	00-03	00	00
F19	CORING	00-07	04	04
F20	DC REST	00-03	02	02
F21	BS START	00-03	01	01
F22	BS GAIN	00-03	01	01
F23	ABL START	00-07	00	00
F24	R/B ANGLE	00-0F	08	08
F25	H BLK R	00-0F	04	03
F26	H BLK L	00-0F	04	00

*1: type of tuner

TUNER TYPE	(Hex)
VTUVTST5UF770	0D
VTUENV56D82-1	12
VTUENV56DA1G3	12
VTUVTST5UF670	0D
VTUVTST5UF740	0D

Table - A

Below are the ranges and initial values for each adjustment and in each categories.

DEF

SERVICE POSITION	ADJUST ITEM	DATA		ADJUSTMENT CONTENTS
		RANGE	INITIAL VALUE	
D01	V-POSITION	00-3F	20	
D02	V-SIZE	00-7F	40	
D03	H-PHASE	00-1F	0C	
D04	CC-POSITION	00-FF	1A	
D05	V-LINEARITY	00-1F	10	Must be "13"
D06	V-S-CORRECTION	00-1F	10	Must be "10"

Table - B

SIGNAL

SERVICE POSITION	ADJUST ITEM	DATA		ADJUSTMENT CONTENTS
		RANGE	INITIAL VALUE	
S01	RF AGC	00-3F	14	
S02	VIDEO LEVEL	00-07	03	
S03	Y-MUTE	00-03	00	"01": Y-MUTE, "02": V-STOP & Y-MUTE "03": Activate color killer circuit.
S04	SUB BIAS	00-FF	40	Must be "30"
S05	R-BIAS	00-FF	00	
S06	G-BIAS	00-FF	00	
S07	B-BIAS	00-7F	00	
S08	R-DRIVE	00-7F	40	
S09	B-DRIVE	00-7F	40	
S10	CONTRAST	00-7F	5A	
S11	TINT	00-7F	40	
S12	COLOR	00-7F	40	
S13	BRIGHTNESS	00-7F	40	

Note: Refer to the SERVICE ADJUSTMENT for each corresponding values.

Table - C

Holding down both the Vol-up/Ch-down buttons on the TV set at service mode for more than 2 seconds will automatically write the above initial values into IC2102.

PART REPLACED	ADJUSTMENT		NOTES
	NECESSARY	UNNECESSARY	
IC2001		X	Data is stored in IC2102.
IC201	X		The adjustment is needed to compensate for characteristics of parts including IC202.
IC2102	X		Holding down both the Vol-up/Ch-down buttons on the TV set in the service mode for more than 2 seconds will automatically write the above initial values into IC2102.
CRT	X		Adjust items related to picture tube only.

Table - D

■ SERVICE ADJUSTMENT

Note: Before making the service adjustment, make the bus data settings.

+B Adjustment

(1) For the chassis with the +B adjustment control

1. Receive a good local channel.
2. Select VIDEO ADJUSTMENT RESET on the menu to get the video reset.
3. Connect a DC voltmeter between the +B line (at SW transformer) of R611 and the ground terminal.
4. Adjust R738 so that the voltmeter should read 128.5+0.5V/-0.25V.

(2) For the chassis without the +B adjustment control

1. Receive a good local channel.
2. Select VIDEO ADJUSTMENT RESET on the menu to get the video reset.
3. Connect a DC voltmeter between the +B line (at SW transformer) of R611 and the ground terminal.
4. Make sure that the voltmeter reads 128.5±1.5V.

Video Level (TV Det Video Level) Adjustment

1. Receive a good local channel.
2. Enter the service mode signal category and select the service adjustment "S02".
3. Set the data value to "02" first, then adjust the data to "04". (If out of spec, readjust the data in the range of "00" to "07" to obtain a normal contrast level.)

RF AGC Adjustment

1. Receive a good local channel.
2. Enter the service mode signal category and select the service adjustment "S01".
3. Set the data value to point where no noise or beat appears.
4. Select another channel to confirm that no noise or beat appears.

   Note: You have to exit the service mode first to select another channel.

Screen Adjustment

1. Connect to oscilloscope probe between TP854 and ground of the CRT unit.
2. Receive a good local channel.
3. Enter the service mode Signal category and set the service adjustment "S04" to step 30. Then select the service adjustment "S12" and set the data value to "00" to set the color level to the minimum level. (record the original data first). You may skip this step, if you selected a B/W picture or monoscope pattern. Set also the "S05/S06/S07" data to minimum level ("00").

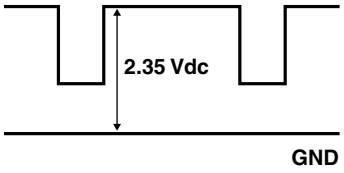


Figure B: WAVEFORM FOR SCREEN ADJUSTMENT

4. Select the service adjustment "S03" and set the data value to "01" to turn off the luminance signal (Y-mute).
5. Select the service adjustment "S13" and adjust the data value to obtain 2.35 volts as shown in **Figure B**.
6. Adjust the master screen control until the raster darkens to the point where raster is barely seen.
7. Adjust the service adjustment "S05" red, "S06" green, "S07" blue to obtain a good grey scale with normal white at low brightness level.
8. Select the service a adjustment "S03" and reset data to "00". Select the service adjustment "S12" and reset data to obtain normal color level.
9. Remove probe and reset the master screen control to obtain normal brightness range.

White Balance Adjustment

1. Receive a good local channel.
2. Select the service adjustment "S12" and set the data value to "00" to set the color level to the minimun. You may skip this step, if you selected a B/W picture or monoscope.
3. Alternately adjust the service adjustment data of "S08" and "S09" until a good grey scale with normal white is obtained.
4. Select the service adjustment "S12" and reset data to obtain normal color level.

Sub-Picture Adjustment

1. Receive a good local channel.
2. Make sure the customer picture control is set to maximum.
3. Enter the service mode and select the service adjustment "S10".
4. Adjust the data value to achieve normal contrast range.

Sub-Tint Adjustment

1. Receive a good local channel.
2. Set the customer tint control to the center of it' s range.
3. Enter the service mode and select the service adjustment "S11".
4. Adjust "S11" data value to obtain normal fresh tones.

Sub-Color Adjustment

1. Receive a good local channel.
2. Make sure the customer color control is set to center position.
3. Enter the service mode and select the service adjustment "S12".
4. Adjust "S12" data value to obtain normal color level.

Sub-Brightness Adjustment

1. Receive a good local channel.
2. Make sure the customer brightness control is set to center position.
3. Enter the service mode and select the service adjustment "S13".
4. Adjust "S13" data value to obtain normal brightness level.

Vertical-Size, V-Linearity and V-S Correction Adjustments

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D02" for Vertical Size, "D05" for V-Linearity and "D06" for V-S Correction Adjustment.
3. Set in order "D05" for V-Linearity, "D06" for V-S Correction and set the data to get the best linearity.
4. Then adjust "D02" data until it become a proper vertical size.

Horizontal Position Adjustment

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D01".
3. Adjust "D01" data value to center the picture.

Vertical-Phase Adjustment

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D03".
3. Adjust "D03" bus data to get the most acceptable vertical position.
   Note: The step range is 20 (32)+12 (3 steps)/ -20 (5 steps).
   (Push once move 4 steps.)

Caption Position Adjustment (Horizontal)

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D04".
3. A black text box will appear on the screen. (see **Figure C**. below)
4. Adjust "D04" data value to balance the text box position in the center. (A=B).

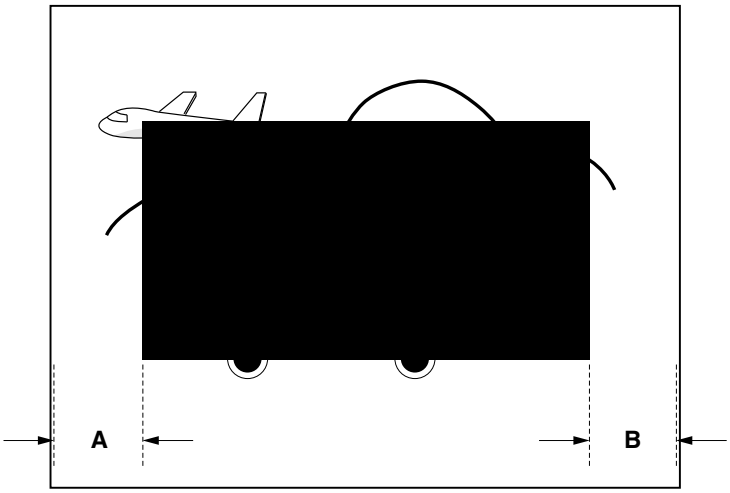
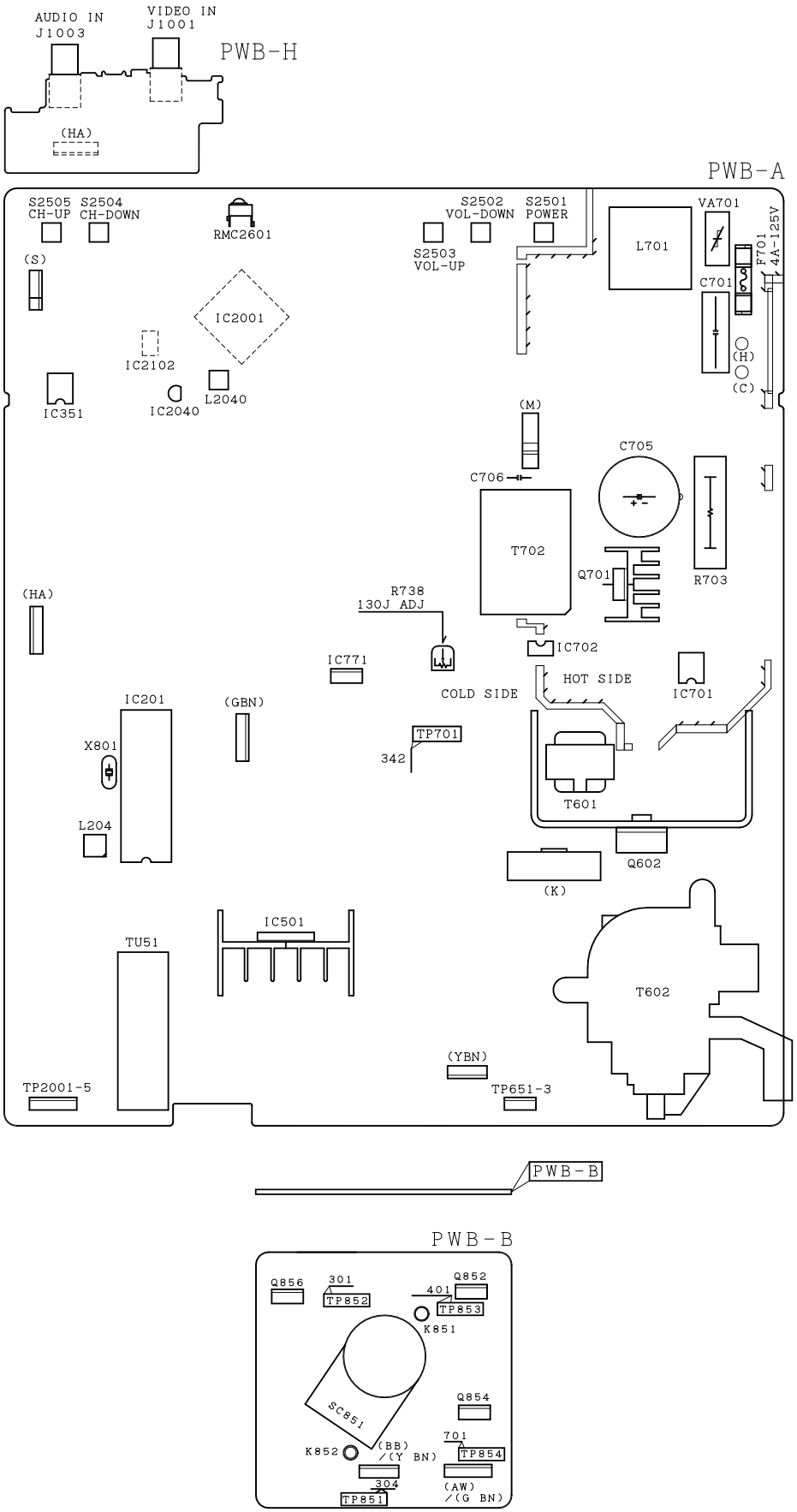
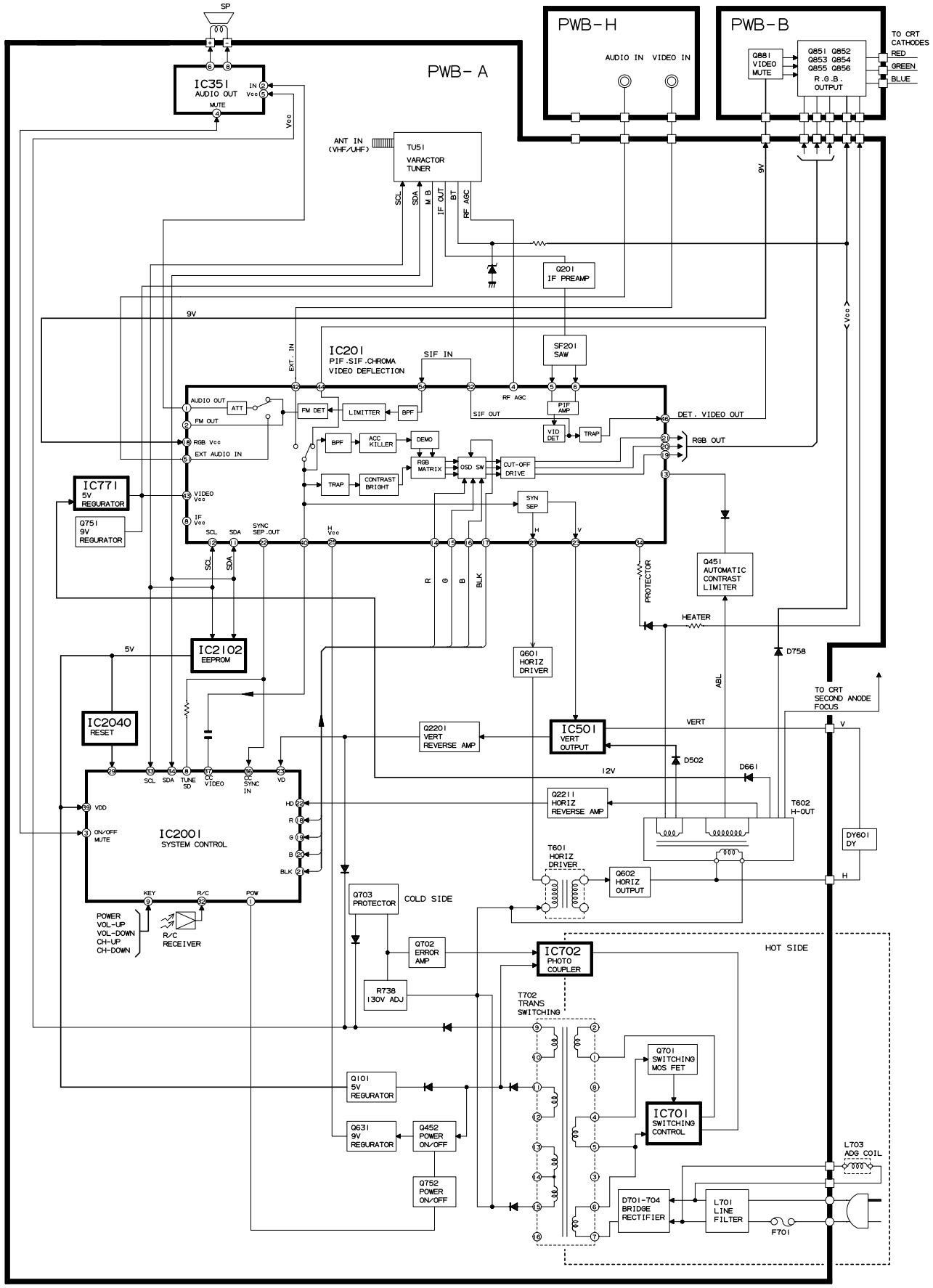


Figure C.

CHASSIS LAYOUT



BLOCK DIAGRAM



DESCRIPTION OF SCHEMATIC DIAGRAM

NOTES:

1. *The unit of resistance "ohm" is omitted. (K=kΩ=1000Ω, M=MΩ)*
2. *All resistors are 1/10 watt, unless otherwise noted.*
3. *All capacitors are μ F, unless otherwise noted. (P=pF=μμF)*
4. *(G) indicates ±2% tolerance may be used.*
5. *⏚ indicates line isolated ground.*

VOLTAGE MEASUREMENTCONDITIONS:

1. *All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μ V B & W or Color signal.*

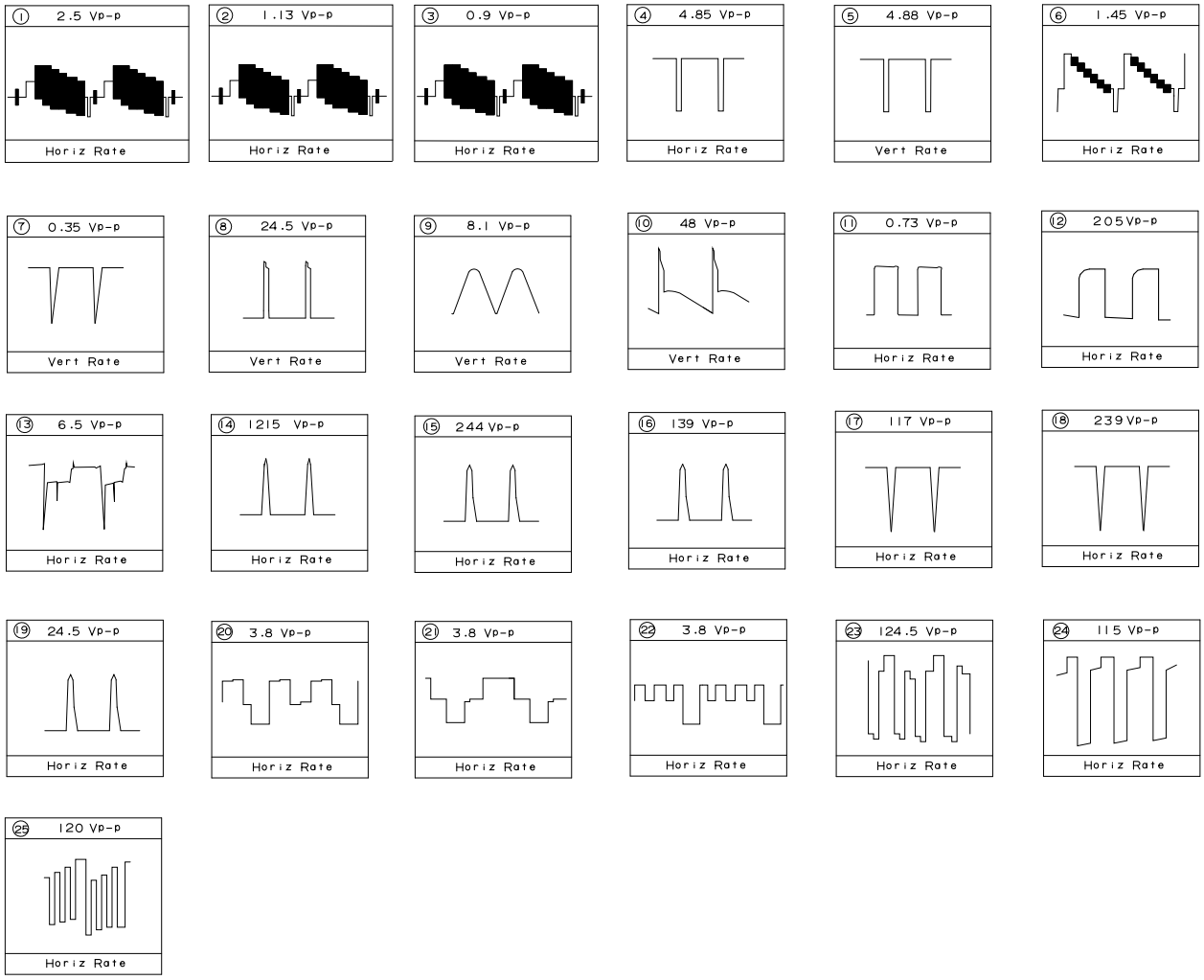
WAVEFORM MEASUREMENT CONDITIONS:

1. *Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. *◯▶ indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)*

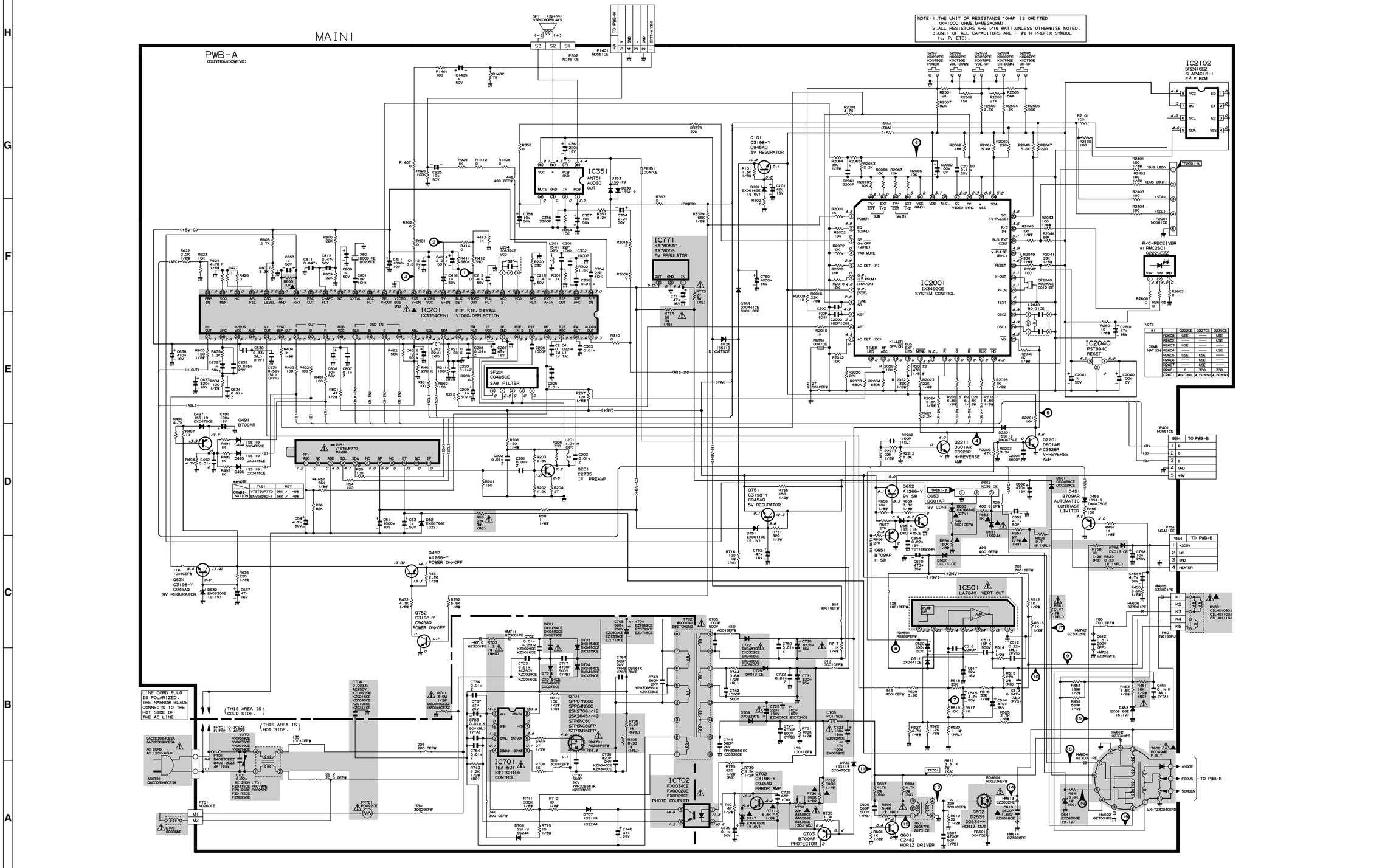
⚠ AND SHADED (▭) COMPONENTS = SAFETY RELATED PARTS.
▲ MARK= X-RAY RELATED PARTS.

This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

WAVEFORMS



SCHEMA TIC DIAGRAM: MAIN Unit



NOTE	0222CE	0227CE	0235CE
R2608	USE	——	USE
R2602	USE	——	USE
R2603	USE	——	USE
R2604	USE	——	USE
R2605	USE	USE	——
R2606	——	USE	——
R2607	——	USE	——
R2601	10	330	330
C2601	47u(16V)	4.7u(50V)	4.7u(50V)

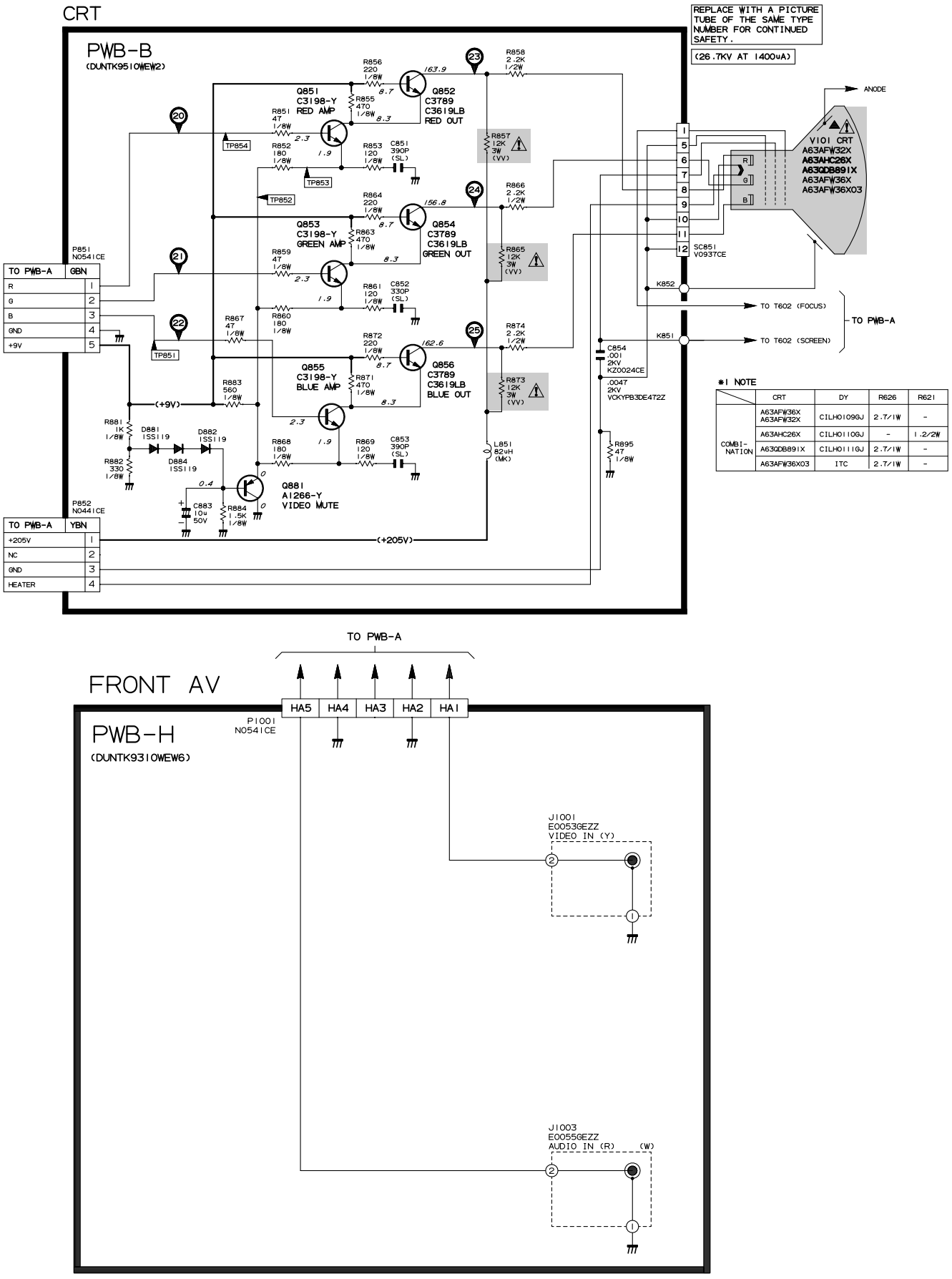
COMB-NATION	TUS1	R57
	VT5T5UF770	56K 1/8W
	ENV56D82-I	56K 1/8W

GBN	TO PWB-B
1	R
2	G
3	B
4	GND
5	+9V

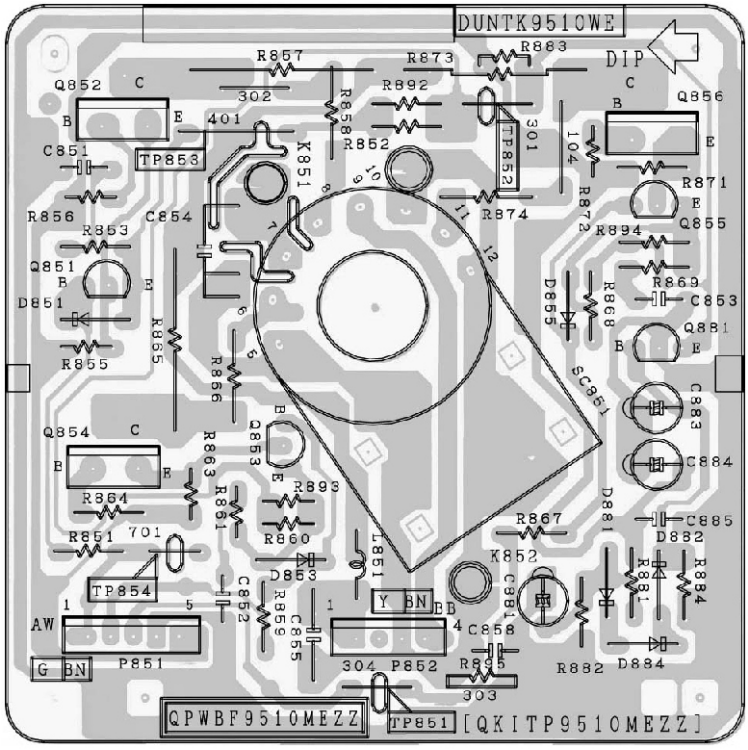
YSN	TO PWB-B
1	+205V
2	NC
3	GND
4	HEATER

	1	2	3	4	5	6	7	8	9	10	11	12

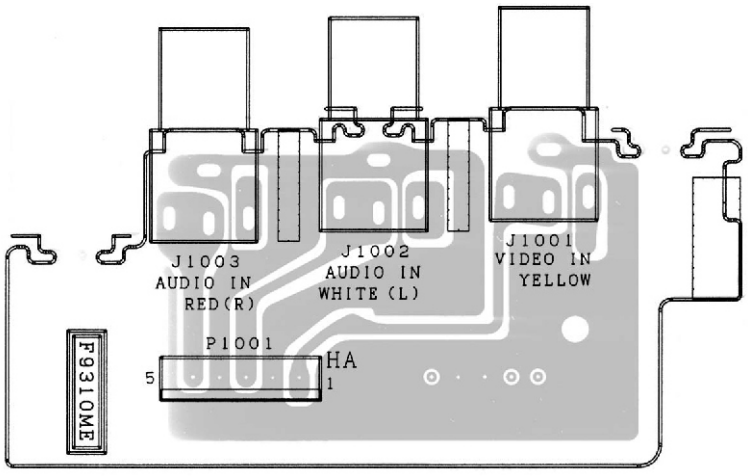
SCHEMATIC DIAGRAM: CRT and FRONT A/V Unit



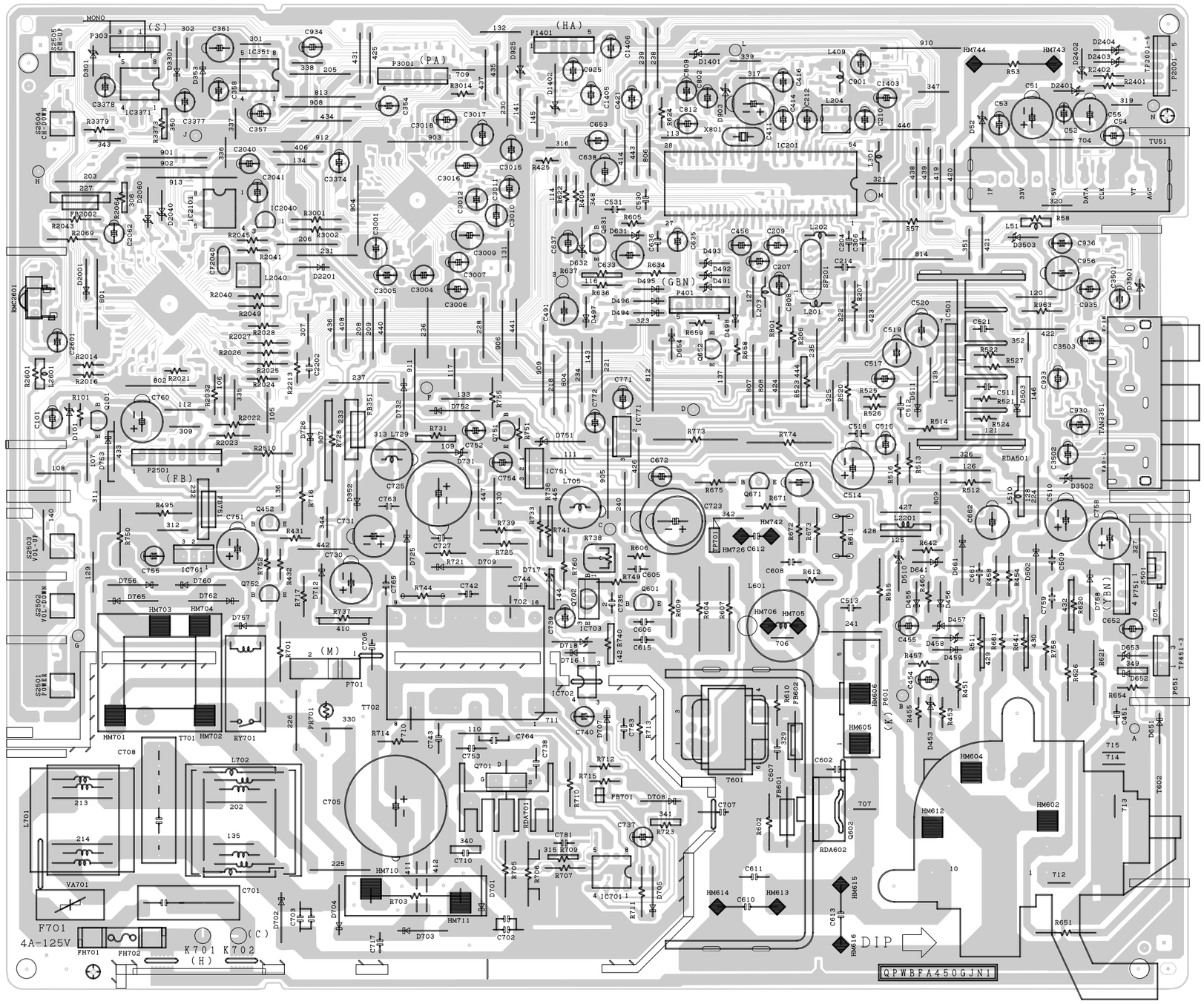
PRINTED WIRING BOARD ASSEMBLIES



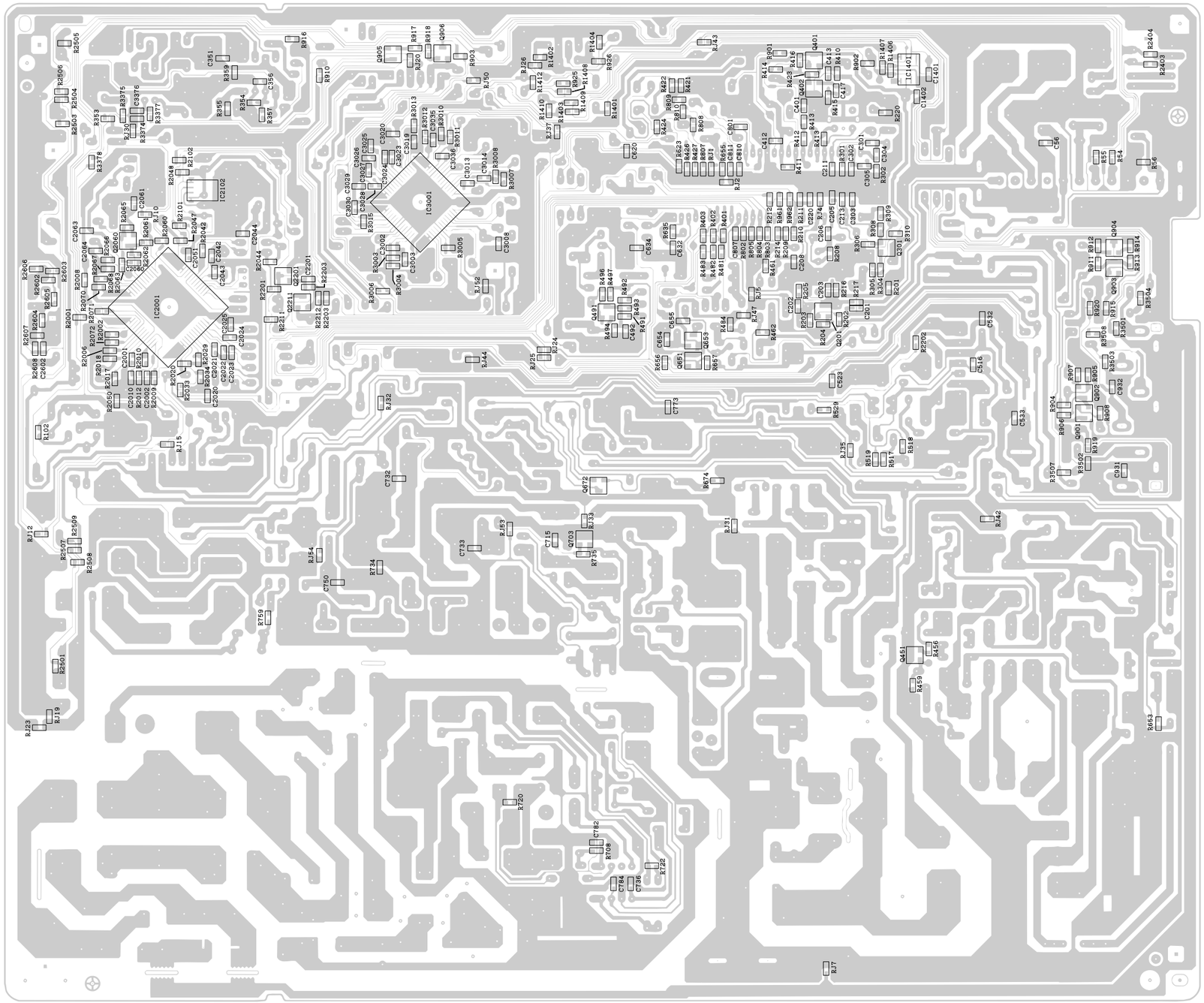
PWB-B: CRT Unit (Wiring Side)



PWB-H: FRONT A/V Unit (Wiring Side)



PWB-A: MAIN Unit (Wiring Side)



PWB-A: MAIN Unit (Chip Parts Side)

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual; electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which dose no have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

in **USA**: Contact your nearest SHARP Parts Distributor to order. For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

★ MARK: SPARE PARTS-DELIVERY SECTION

▲ MARK: X- RAY RELATED PARTS

Ref. No.	Part No.	★	Description	Code

PICTURE TUBE

▲⚠ V101	VB63AFW32X/*S	X	CRT (DY601:CiLH0109GJ)	CC
	or			
	VB63AHC26X/*S		CRT (DY601:CiLH0110GJ)	
	or			
	VB63QD891X/*S		CRT (DY601:CiLH0111GJ)	
	or			
	VB63AFW36X/*S		CRT (DY601:CiLH0109GJ)	
	or			
	VB63AFW36031E		CRT (I.T.C)	
▲⚠ DY601	RCiLH0109GJZZ	X	DY (CRT:A63AFW36X or A63AFW32X)	BB
	or			
	RCiLH0110GJZZ		DY (CRT:A63AHC26X)	
	or			
	RCiLH0111GJZZ		DY (CRT:A63QDB891X)	

	CRT	DY	R626	R621
COMBI-NATION	A63AFW36X A63AFW32X	CILH0109GJ	2.7/1W	-
	A63AHC26X	CILH0110GJ	-	1.2/2W
	A63QDB891X	CILH0111GJ	2.7/1W	-
	A63AFW36X03	ITC	2.7/1W	-

⚠ L703	RCiLG0036MEZZ	X	Degaussing Coil	AN
	PMAGF3046CEZZ	J	Purity Magnet	AF
	QEARC2508MEZZ	X	Grounding Strap	AG
	MSPRT0002MEZZ	X	Spring	AE

Ref. No.	Part No.	★	Description	Code

PRINTED WIRING BOARD ASSEMBLIES
(NOT REPLACEMENT ITEM)

PWB-A	DUNTKA450WEV3	–	MAIN Unit	—
PWB-B	DUNTK9510WEV1	–	CRT Unit	—
PWB-H	DUNTK9310WEV2	–	FRONT AV Unit	—

PWB-A: DUNTKA450WEV3
MAIN UNIT

TUNER

NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.

⚠ TU51	VTUVTST5UF770	J	Tuner	AZ
	or			
	VTUENV56D82-1			

	TU51	R57
COMBI-NATION	VTST5UF770	56K ⁄ 1⁄8W
	ENV56D82-1	56K ⁄ 1⁄8W

INTEGRATED CIRCUITS

▲⚠ IC201	RH-iX3354CEN1	X	I.C.	AS
IC351	VHiAN7511//-1	J	AN7511	AK
⚠ IC501	VHiLA7840//-1	J	LA7840	AR
⚠ IC701	VHiTEA1507/-1	J	TEA1507P/N1	AL
⚠ IC702	RH-FX0034CEZZ	J	PC817	AE
	or			
	RH-FX0002GEZZ			
	or			
	RH-FX0029CEZZ			
⚠ IC771	VHiKA7805AP-1	J	KA7805API	AE
	or			
	VHiTA7805S/-1			
IC2001	RH-iX3492CEZZQ	X	TMPA8700CPF	AT
IC2040	VHiPST994C/-1	J	PST994C	AD
IC2102	VHiBR2416E2-1	J	BR24C16F	AK
	or			
	VHiSLA24C16-1			

TRANSISTORS

Q101	VS2SC3198-Y-1	J	2SC3198-Y	AA
	or			
	VS2SC945AQ/-1			
Q201	VS2SC2735//1E	J	2SC2735	AC
Q451	VS2SB709AR/-1	J	2SB709AR	AC
Q452	VS2SA1266-Y-1	J	2SA1266-Y	AA
Q491	VS2SB709AR/-1	J	2SB709AR	AC
Q601	VS2SC2482//-1	J	2SC2482	AD
⚠ Q602	VS2SD2539//1E	J	2SD2539	AP
	or			
	VS2SD2634++-1			
Q631	VS2SC3198-Y-1	J	2SC3198-Y	AA
	or			
	VS2SC945AQ/-1			
Q651	VS2SB709AR/-1	J	2SB709AR	AC
Q652	VS2SA1266-Y-1	J	2SA1266-Y	AA
Q653	VS2SD601AR/-1	J	2SD601AR	AC
⚠ Q701	VSSPP07N60C-1	X	FET	AF
	or			
	VSSPP04N60C-1			
	or			
	VS2SK2708//1E			
	or			
	VS2SK2645//-G			
	or			
	VSSTP6NC60+-1			
	or			
	VSSTP6NC60F-1			
	or			
	VSSTP7NB60F-1			

PWB-A: DUNTKA450WEV3
MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description	Code
⚠ Q702	VS2SC3198-Y-1 or VS2SC945AQ/-1	J	2SC3198-Y	AA
Q703	VS2SB709AR/-1	J	2SB709AR	AC
Q751	VS2SC3198-Y-1 or VS2SC945AQ/-1	J	2SC3198-Y	AA
Q752	VS2SC3198-Y-1 or VS2SC945AQ/-1	J	2SC3198-Y	AA
Q2201	VS2SD601AR/-1 or VS2SC3928R/-1	J	2SD601AR	AC
Q2211	VS2SD601AR/-1 or VS2SC3928R/-1	J	2SD601AR	AC

DIODES

D52	RH-EX0676GEZZ	J	Zener Diode, 32V	AA
D101	RH-EX0616GEZZ	J	Zener Diode, 5.6V	AA
D353	VHD1SS119//-1	J	Diode	AB
D453	RH-EX0616GEZZ	J	Zener Diode, 5.1V	AA
D455	VHD1SS119//-1 or RH-DX0475CEZZ	J	Diode	AB
D494	VHD1SS119//-1 or RH-DX0475CEZZ	J	Diode	AB
D495	VHD1SS119//-1 or RH-DX0475CEZZ	J	Diode	AB
D496	VHD1SS119//-1 or RH-DX0475CEZZ	J	Diode	AB
D497	VHD1SS119//-1 or RH-DX0475CEZZ	J	Diode	AB
⚠ D502	RH-DX0131CEZZ	J	Diode	AC
D511	RH-DX0441CEZZ	J	Diode	AC
D632	RH-EX0630GEZZ	J	Zener Diode, 9.1V	AA
⚠ D641	RH-EX0630GEZZ	J	Zener Diode, 9.1V	AA
▲⚠ D651	VHD1SS244//-1	J	Diode	AB
▲⚠ D653	RH-EX0666GEZZ	J	Zener Diode, 27V	AB
D654	VHD1SS119//-1 or RH-DX0475CEZZ	J	Diode	AB
⚠ D661	RH-DX0468CEZZ or RH-DX0229CEZZ	J	Diode	AE
⚠ D701	RH-DX0154CEZZ or RH-DX0490CEZZ or RH-DX0279CEZZ	J	Diode	AC
⚠ D702	RH-DX0154CEZZ or RH-DX0490CEZZ or RH-DX0279CEZZ	J	Diode	AC
⚠ D703	RH-DX0154CEZZ or RH-DX0490CEZZ or RH-DX0279CEZZ	J	Diode	AC
⚠ D704	RH-DX0154CEZZ or RH-DX0490CEZZ or RH-DX0279CEZZ	J	Diode	AC
D707	VHD1SS119//-1 or VHD1SS244//-1	J	Diode	AB
D708	VHD1SS119//-1 or VHD1SS244//-1	J	Diode	AB
⚠ D709	RH-DX0229CEZZ	J	Diode	AF
⚠ D712	RH-DX0487CEZZ or RH-DX0302CEZZ or RH-DX0468CEZZ or RH-DX0488CEZZ or RH-DX0513CEZZ	J	Diode	AC
▲⚠ D717	RH-EX0616GEZZ	J	Zener Diode, 5.6V	AA
⚠ D725	RH-DX0131CEZZ	J	Diode	AC
D726	VHD1SS119//-1 or RH-DX0475CEZZ	J	Diode	AB
D732	VHD1SS119//-1 or RH-DX0475CEZZ	J	Diode	AB
D751	RH-EX0611GEZZ	J	Zener Diode, 5.1V	AA
D753	RH-DX0441CEZZ or RH-DX0110CEZZ	J	Diode	AC
⚠ D758	RH-DX0131CEZZ	J	Diode	AC
D2201	VHD1SS119//-1 or RH-DX0475CEZZ	J	Diode	AB
D3301	VHD1SS119//-1	J	Diode	AB
⚠ VA701	RH-VX0048CEZZ or RH-VX0035CEZZ or RH-VX0019CEZZ or RH-VX0074CEZZ	J	Varistor	AE

PACKAGED CIRCUITS

⚠ PR701	RMPTP0092CEZZ	J	Packaged Circuit	AH
X801	RCRSB0001PEZZ or RCRSB0205CEZZ	R	Crystal	AL

FILTERS AND COILS

CF2040	RFiLA0099CEZZ or RFiLC0121GEZZ	J	Ceramic Filter	AE
SF201	RFiLC0405CEZZ	J	SAW Filter	AH
L201	VP-XF1R2K0000	J	Peaking 1.2µH	AB
L203	VP-XF220K0000	J	Peaking 22µH	AB
L204	RCiLi0632CEZZ	J	IF Coil	AE
L301	VP-XF150K0000	J	Peaking 15µH	AB
⚠ L701	RCiLF0078PEZZ or RCiLF0025PEZZ	R	Coil	AF
⚠ L705	RCiLP0179CEZZ	J	Coil	AD
L2040	RCiLB0131CEZZ	J	Oscillation Coil	AE

TRANSFORMERS

⚠ T601	RTRNZ0057PEZZ or RTRNZ0731CEZZ	R	Transformer	AK
▲⚠ T602	RTRNF0049MEZZ	X	H-Volt Transformer	AY
⚠ T702	RTRNW0001GJZZ	X	Transformer	AN

CONTROL

▲⚠ R738	RVR-M4588CEZZ+ or RVR-M4628GEZZ or RVR-M4336CEZZ	X	22k(B) 130V Adj.	AE

PWB-A: DUNTKA450WEV3
MAIN UNIT (Continued)

CAPACITORS
[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]

Ref. No.	Part No.	★			Description	Code
C51	VCEA0A1AW108M	J	1000	10V	EL.	AC
C53	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C54	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C101	VCEA0A1CW476M	J	47	16V	EL.	AB
C201	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C202	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C203	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C204	VCQYTA1HM223K	J	0.022	50V	Mylar	AB
C205	VCKYCY1HB103K	J	0.01	50V	Ceramic	AA
C206	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C207	VCEA0A1CW476M	J	47	16V	EL.	AB
C208	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C209	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C210	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C212	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C220	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C301	VCCCCY1HH220J	J	22p	50V	Ceramic	AA
C302	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C303	VCKYCY1HB103K	J	0.01	50V	Ceramic	AA
C304	VCCCCY1HH220J	J	22p	50V	Ceramic	AA
C305	VCKYCY1HB103K	J	0.01	50V	Ceramic	AA
C354	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C356	VCKYCY1HB332K	J	3300p	50V	Ceramic	AA
C357	VCEA0A1HW106M	J	10	50V	EL.	AB
C358	VCEA0A1HW106M	J	10	50V	EL.	AB
C361	VCEA0A1CW227M	J	220	16V	EL.	AC
C411	VCEA0A1AW108M	J	1000	10V	EL.	AC
C412	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C414	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C416	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C451	VCQYTA1HM104K	J	0.1	50V	Mylar	AC
C454	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C456	VCEA0A1HW106M	J	10	50V	EL.	AB
C491	VCEA0A1CW107M	J	100	16V	EL.	AC
C492	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C510	VCEA0A1VW477M	J	470	35V	EL.	AB
C511	VCCSPA2HL180K	J	18p	500V	Ceramic	AA
C512	VCFYSA1JB224J+	X	0.22	63V	Mylar	AF
C513	VCFYSA1JB473J	J	0.047	63V	Mylar	AC
C514	VCEA0A1VW477M	J	470	35V	EL.	AB
C515	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C516	VCKYCY1HB222K	J	2200p	50V	Ceramic	AA
C517	VCEA0A1CW226M	J	22	16V	EL.	AB
C520	VCEA0A1HW107M	J	100	50V	EL.	AB
C530	VCFYFA1HA334J	J	0.33	50V	Mylar	AB
C531	VCFYFA1HA564J	J	0.56	50V	Mylar	AB
C606	VCKYPA2HB561K	J	560p	500V	Ceramic	AA
C607	VCKYPA1HB472K	J	4700p	50V	Ceramic	AA
▲⚠ C610	RC-FZ1018CEZZ	X	12600p	1.6kV	Plastic	AG
C612	VCFPVC2DB514J	X	0.51	200V	M-Poly.	AF
C632	VCKYCY1EB153K	J	0.015	25V	Ceramic	AA
C633	VCEA0A1AW337M+	X	330	10V	EL.	AE
C634	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C635	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C637	VCEA0A1CW476M	J	47	16V	EL.	AB
C638	VCEA0A1AW477M	J	470	10V	EL.	AC
C652	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C653	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C654	VCKYCY1CB224K*	X	0.22	16V	Ceramic	AE
C662	VCEA0A1CW477M	J	470	16V	EL.	AC
⚠ C701	RC-FZ037SCEZZ	J	0.22	AC250V	Plastic	AD
	or					
	RC-FZ012SGEZZ					
	or					
	RC-FZ017SCEZZ					
	or					
	RC-FZ029SCEZZ					
C702	RC-KZ0029CEZZ	J	0.01	AC250V	Ceramic	AC
	or					
	RC-KZ0016CEZZ					
C703	RC-KZ0029CEZZ	J	0.01	AC250V	Ceramic	AC
	or					
	RC-KZ0016CEZZ					
⚠ C705	RC-EZ0800CEZZ	J	560	200V	EL.	AQ
	or					
	RC-EZ1336CEZZ					
	or					
	RC-EZ0719CEZZ					
	or					
	RC-EZ1022CEZZ	X	470	200V	EL.	AN
	or					
	RC-EZ0799CEZZ					
	or					
	RC-EZ0718CEZZ					
⚠ C706	RC-KZ0092GEZZ	J	0.0033	AC250V	Ceramic	AC
	or					
	RC-KZ021SCEZZ					
	or					
	RC-KZ009SCEZZ					
	or					
	RC-KZ0106GEZZ					
	or					
	RC-KZ0311CEZZ					
C710	VCKYPH3DB561K	J	560p	2kV	Ceramic	AC
	or					
	RC-KZ0338CEZZ					
C717	VCKYPA2HB472K	J	4700p	500V	Ceramic	AB
⚠ C723	RC-EZ0724CEZZ	J	100	160V	EL.	AG
	or					
	RC-EX0659CEZZ	J	47	160V	EL.	
⚠ C725	RC-EZ0809CEZZ	J	220	160V	EL.	AL
	or					
	RC-EX0724CEZZ	J	100	160V	EL.	
C727	VCKYPA2HB472K	J	4700p	500V	Ceramic	AB
⚠ C730	VCEA0A1CW108M	J	1000	16V	EL.	AD
⚠ C731	VCEA0A1EW337M	J	330	25V	EL.	AC
C732	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C735	VCCCPA1HH680J	J	68p	50V	Ceramic	AA
C736	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C737	VCEA0A1EW226M	J	22	25V	EL.	AB
C738	RC-KZ0040CEZZ	J	820p	2kV	Ceramic	AD
	or					
	RC-KZ0340CEZZ					
C739	VCEA0A1HW104M	J	0.1	50V	EL.	AB
C740	VCEA0A1EW476M	J	47	25V	EL.	AB
C742	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
C743	VCKYPH3DB561K	J	560p	2kV	Ceramic	AC
	or					
	RC-KZ0338CEZZ					
C744	VCKYPH3DB561K	J	560p	2kV	Ceramic	AC
	or					
	RC-KZ0338CEZZ					
C750	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C752	VCEA0A1CW476M	J	47	16V	EL.	AB
C758	VCEA0A2EW106M	J	10	250V	EL.	AD
C760	VCEA0A1CW108M	J	1000	16V	EL.	AD
C764	VCKYPH3DB561K	J	560p	2kV	Ceramic	AC
	or					
	RC-KZ0338CEZZ					
C765	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
C771	VCEA0A1CW476M	J	47	16V	EL.	AB
C783	VCQYTA1HM103K	J	0.01	50V	Mylar	AB
C784	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C801	VCCCCY1HH180J	J	18p	50V	Ceramic	AA
C807	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C808	VCEA0A1HW106M	J	10	50V	EL.	AB
C809	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C811	VCKYCY1CB473K	J	0.047	16V	Ceramic	AA
C812	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C925	VCEA0A1HW106M	J	10	50V	EL.	AB
C1405	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C2001	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2002	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2040	VCEA0A1AW107M	J	100	10V	EL.	AB
C2041	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C2060	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA

PWB-A: DUNTKA450WEV3
MAIN UNIT (Continued)

Ref. No.	Part No.	★			Description	Code
C2061	VCKYCY1HB222K	J	2200p	50V	Ceramic	AA
C2062	VCEA0A1AW107M	J	100	10V	EL.	AB
C2201	VCKYCY1HB682K	J	6800p	50V	Ceramic	AA
C2202	VCCSPA1HL151J	J	150p	50V	Ceramic	AA
C2601	VCEA0A1CW476M	J	47	16V	EL.	AB
	or					
	VCEA0A1HW475M	J	4.7	50V	EL.	AB

RESISTORS
[M-Ox.··· Metal Oxide, M-Film··· Metal Film]

Ref. No.	Part No.	★			Description	Code
RJ1	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ2	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ4	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ5	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ10	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ23	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ24	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ26	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ30	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ37	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ42	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ43	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ44	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ47	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ50	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ52	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ53	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
⚠ R53	VRS-RG3LB223J+	X	22k	3W	M-Ox.	AF
R54	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R55	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R56	VRS-CY1JF823J	J	82k	1/16W	M-Ox.	AA
R57	VRD-RA2BE563J	J	56k	1/8W	Carbon	AA
R58	VRD-RA2BE1R0J	J	1.0	1/8W	Carbon	AA
R101	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R102	VRS-CY1JF100J	J	10	1/16W	M-Ox.	AA
R201	VRS-CY1JF151J	J	150	1/16W	M-Ox.	AA
R202	VRS-CY1JF122J	J	1.2k	1/16W	M-Ox.	AA
R203	VRS-CY1JF682J	J	6.8k	1/16W	M-Ox.	AA
R204	VRS-CY1JF270J	J	27	1/16W	M-Ox.	AA
R205	VRS-CY1JF331J	J	330	1/16W	M-Ox.	AA
R206	VRD-RA2EE151J	J	150	1/4W	Carbon	AA
R207	VRD-RA2BE123J	J	12k	1/8W	Carbon	AA
R209	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R210	VRS-CY1JF104J	J	100k	1/16W	M-Ox.	AA
R211	VRS-CY1JF104J	J	100k	1/16W	M-Ox.	AA
R212	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R220	VRS-CY1JF331J	J	330	1/16W	M-Ox.	AA
R301	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R302	VRS-CY1JF152J	J	1.5k	1/16W	M-Ox.	AA
R310	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R353	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R354	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R355	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R357	VRS-CY1JF822J	J	8.2k	1/16W	M-Ox.	AA
R401	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R402	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R403	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R404	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R411	VRS-CY1JF684J	J	680k	1/16W	M-Ox.	AA
R412	VRS-CY1JF391J	J	390	1/16W	M-Ox.	AA
R413	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R414	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R426	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R427	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R431	VRD-RA2BE272J	J	2.7k	1/8W	Carbon	AA
R432	VRD-RA2BE472J	J	4.7k	1/8W	Carbon	AA
⚠ R451	VRS-RG2HC103J	J	10k	1/2W	M-Ox.	AA
R453	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R454	VRD-RM2HD184J	J	180k	1/2W	Carbon	AA
R455	VRD-RA2BE392J	J	3.9k	1/8W	Carbon	AA
R456	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R457	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R458	VRD-RA2EE564J	J	560k	1/4W	Carbon	AA
R461	VRS-CY1JF274J	J	270k	1/16W	M-Ox.	AA
R462	VRS-CY1JF563J	J	56k	1/16W	M-Ox.	AA
R491	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R492	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R493	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R494	VRS-CY1JF472J	J	4.7k	1/16W	M-Ox.	AA
R496	VRS-CY1JF472J	J	4.7k	1/16W	M-Ox.	AA
R497	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R512	VRD-RM2HD102J	J	1.0k	1/2W	Carbon	AA
R513	VRD-RM2HD102J	J	1.0k	1/2W	Carbon	AA
R514	VRD-RM2HD1R0J	J	1.0	1/2W	Carbon	AA
R515	VRS-RG3DB271J+	X	270	2W	M-Ox.	AE
R516	VRD-RA2BE333J	J	33k	1/8W	Carbon	AA
R517	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R518	VRS-CY1JF333J	J	33k	1/16W	M-Ox.	AA
R519	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R520	VRN-RL3AB1R0J+	X	1.0	1W	M-Film	AE
R522	VRD-RA2BE122J	J	1.2k	1/8W	Carbon	AA
R525	VRD-RA2BE272J	J	2.7k	1/8W	Carbon	AA
R527	VRD-RA2BE472J	J	4.7k	1/8W	Carbon	AA
R529	VRS-CY1JF392J	J	3.9k	1/16W	M-Ox.	AA
⚠ R604	VRS-RG3LB472J+	X	4.7k	3W	M-Ox.	AF
R605	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
R606	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
⚠ R607	VRS-RG3LB472J+	X	4.7k	3W	M-Ox.	AF
⚠ R609	VRS-RG3AB562J+	X	5.6k	1W	M-Ox.	AE
R610	VRD-RM2HD220J	J	22	1/2W	Carbon	AA
R611	VRS-KA3NG3R3K	J	3.3	7W	M-Ox.	AD
⚠ R620	VRN-RL3ABR33J+	X	0.33	1W	M-Film	AE
R621	VRN-RL3DB1R2J	X	1.2	2W	M-Film	AF
R622	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
R623	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R624	VRN-RA2BK472F	J	4.7k	1/8W	M-Film	AA
⚠ R626	VRN-RL3AB2R7J+	X	2.7	1W	M-Film	AE
R634	VRD-RM2HD121J	J	120	1/2W	Carbon	AA
R635	VRS-CY1JF332J	J	3.3k	1/16W	M-Ox.	AA
R636	VRD-RA2EE221J	J	220	1/4W	Carbon	AA
⚠ R641	VRS-RG3AB682J+	X	6.8k	1W	M-Ox.	AE
▲⚠ R651	VRS-RG2HC270J+	X	27	1/2W	M-Ox.	AE
▲⚠ R653	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
▲⚠ R654	VRD-RA2BE154J	J	150k	1/8W	Carbon	AA
▲⚠ R655	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R656	VRS-CY1JF273J	J	27k	1/16W	M-Ox.	AA
R657	VRS-CY1JF273J	J	27k	1/16W	M-Ox.	AA
R658	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA
R659	VRD-RA2BE332J	J	3.3k	1/8W	Carbon	AA
⚠ R661	VRN-RL3ABR47J+	X	0.47	1W	M-Film	AE
⚠ R701	RR-DZ0049CEZZ	J	3.9M	1/2W	Carbon	AB
	or					
	RR-HZ0048CEZZ					
⚠ R703	VRW-KQ3NC1R2K	J	1.2	7W	Cement	AE
⚠ R705	VRN-RL3ABR33J+	X	0.33	1W	M-Film	AE
⚠ R706	VRN-RL3ABR22J+	X	0.22	1W	M-Film	AE
R707	VRD-RM2HD270J	J	27	1/2W	Carbon	AA
R708	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R710	VRS-RG2HC103J	J	10k	1/2W	M-Ox.	AA
R711	VRD-RA2BE334J	J	330k	1/8W	Carbon	AA
R712	VRD-RA2BE100J	J	10	1/8W	Carbon	AA
R713	VRS-RG2HC122J+	X	1.2k	1/2W	M-Ox.	AE
R715	VRD-RA2BE150J	J	15	1/8W	Carbon	AA
R716	VRS-RG3AB121J+	X	120	1W	M-Ox.	AE
R717	VRD-RA2EE102J	J	1.0k	1/4W	Carbon	AA
R721	VRD-RM2HD104J	J	100k	1/2W	Carbon	AA
R725	VRS-RG2HC821J+	X	820	1/2W	M-Ox.	AE
▲⚠ R733	VRD-RA2EE394J	J	390k	1/4W	Carbon	AA
R735	VRS-CY1JF332J	J	3.3k	1/16W	M-Ox.	AA
▲⚠ R736	VRD-RM2HD184J	J	180k	1/2W	Carbon	AA
R739	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R740	VRD-RM2HD470J	J	47	1/2W	Carbon	AA
▲⚠ R741	VRN-RA2BK682F	J	6.8k	1/8W	M-Film	AA
R744	VRN-RL2HCR68J+	X	0.68	1/2W	M-Film	AE
R751	VRD-RA2BE821J	J	820	1/8W	Carbon	AA
R752	VRD-RA2BE562J	J	5.6k	1/8W	Carbon	AA
R755	VRD-RM2HD151J	J	150	1/2W	Carbon	AA
⚠ R758	VRS-RG2HC100J+	X	10	1/2W	M-Ox.	AE

PWB-A: DUNTKA450WEV3

MAIN UNIT (Continued)

Ref. No.	Part No.	★				Code
⚠ R773	VRS-RG3LB270J+	X	27	3W	M-Ox.	AF
⚠ R774	VRS-RG3LB680J+	X	68	3W	M-Ox.	AF
R801	VRD-RM2HD470J	J	47	1/2W	Carbon	AA
R807	VRS-CY1JF332J	J	3.3k	1/16W	M-Ox.	AA
R808	VRS-CY1JF272J	J	2.7k	1/16W	M-Ox.	AA
R809	VRS-CY1JF223J	J	22k	1/16W	M-Ox.	AA
R810	VRS-CY1JF223J	J	22k	1/16W	M-Ox.	AA
R901	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R902	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R925	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R926	VRS-CY1JF104J	J	100k	1/16W	M-Ox.	AA
R961	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R962	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R1401	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R1402	VRS-CY1JF750J	J	75	1/16W	M-Ox.	AA
R1407	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R1408	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R1412	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R2001	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R2002	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2006	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2008	VRS-CY1JF472J	J	4.7k	1/16W	M-Ox.	AA
R2009	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R2010	VRS-CY1JF102J	J	1.0k	1/16W	M-Ox.	AA
R2012	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2016	VRD-RA2BE223J	J	22k	1/8W	Carbon	AA
R2018	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2020	VRS-CY1JF223J	J	22k	1/16W	M-Ox.	AA
R2022	VRD-RA2BE333J	J	33k	1/8W	Carbon	AA
R2023	VRD-RA2BE223J	J	22k	1/8W	Carbon	AA
R2024	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2025	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2026	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2027	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2028	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R2029	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2032	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R2033	VRS-CY1JF684J	J	680k	1/16W	M-Ox.	AA
R2034	VRS-CY1JF684J	J	680k	1/16W	M-Ox.	AA
R2040	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R2041	VRD-RA2BE333J	J	33k	1/8W	Carbon	AA
R2042	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R2043	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2044	VRS-CY1JF683J	J	68k	1/16W	M-Ox.	AA
R2045	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2047	VRS-CY1JF221J	J	220	1/16W	M-Ox.	AA
R2048	VRS-CY1JF562J	J	5.6k	1/16W	M-Ox.	AA
R2049	VRD-RA2BE333J	J	33k	1/8W	Carbon	AA
R2060	VRS-CY1JF221J	J	220	1/16W	M-Ox.	AA
R2061	VRS-CY1JF562J	J	5.6k	1/16W	M-Ox.	AA
R2062	VRS-CY1JF183J	J	18k	1/16W	M-Ox.	AA
R2063	VRS-CY1JF222J	J	2.2k	1/16W	M-Ox.	AA
R2064	VRD-RA2BE391J	J	390	1/8W	Carbon	AA
R2065	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R2066	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2067	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2068	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2070	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2072	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2101	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R2102	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R2201	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R2202	VRS-CY1JF473J	J	47k	1/16W	M-Ox.	AA
R2203	VRS-CY1JF332J	J	3.3k	1/16W	M-Ox.	AA
R2211	VRS-CY1JF222J	J	2.2k	1/16W	M-Ox.	AA
R2212	VRS-CY1JF682J	J	6.8k	1/16W	M-Ox.	AA
R2213	VRD-RA2BE223J	J	22k	1/8W	Carbon	AA
R2401	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2402	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2403	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R2404	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R2501	VRS-CY1JF123J	J	12k	1/16W	M-Ox.	AA
R2503	VRS-CY1JF273J	J	27k	1/16W	M-Ox.	AA
R2504	VRS-CY1JF123J	J	12k	1/16W	M-Ox.	AA
R2505	VRS-CY1JF563J	J	56k	1/16W	M-Ox.	AA
R2506	VRS-CY1JF563J	J	56k	1/16W	M-Ox.	AA
R2507	VRS-CY1JF823J	J	82k	1/16W	M-Ox.	AA
R2508	VRS-CY1JF153J	J	15k	1/16W	M-Ox.	AA
R2509	VRS-CY1JF272J	J	2.7k	1/16W	M-Ox.	AA
R2601	VRD-RA2BE100J	J	10	1/8W	Carbon	AA
	or					
	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R2602	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R2603	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R2604	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R2605	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R2606	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R2607	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R2608	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R3006	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R3015	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
R3378	VRS-CY1JF223J	J	22k	1/16W	M-Ox.	AA
R3379	VRD-RA2BE683J	J	68k	1/8W	Carbon	AA

SWITCHES

S2501	QSW-K0202PEZZ	R	POWER	AC
	or			
	QSW-K0079GEZZ			
S2502	QSW-K0202PEZZ	R	VOL-Down	AC
	or			
	QSW-K0079GEZZ			
S2503	QSW-K0202PEZZ	R	VOL-Up	AC
	or			
	QSW-K0079GEZZ			
S2504	QSW-K0202PEZZ	R	CH-Down	AC
	or			
	QSW-K0079GEZZ			
S2505	QSW-K0202PEZZ	R	CH-Up	AC
	or			
	QSW-K0079GEZZ			

MISCELLANEOUS PARTS

⚠ F701	QFS-B4023CEZZ	J	Fuse 4A/125V	AC
	or			
	QFS-B4021GEZZ			
FB351	RBLN-0047CEZZ	J	Ferrite Bead	AB
FB601	RBLN-0047CEZZ	J	Ferrite Bead	AB
FB751	RBLN-0047CEZZ	J	Ferrite Bead	AB
FH701	QFSHD1013CEZZ	J	Fuse Holder	AC
FH702	QFSHD1014CEZZ	J	Fuse Holder	AC
P302	QPLGN0361CEZZ	J	Plug, 3-pin(S)	AB
P401	QPLGN0561CEZZ	J	Plug, 5-pin(GBN)	AB
P601	QPLGN0160FJZZ	J	Plug, 5-pin(K)	AD
P651	QPLGN0361CEZZ	J	Plug, 3-pin(TP651-3)	AB
P701	QPLGN0260CEZZ	J	Plug, 2-pin(M)	AC
P751	QPLGN0461CEZZ	J	Plug, 4-pin(YBN)	AB
P1401	QPLGN0561CEZZ	J	Plug, 5-pin(HA)	AB
P2001	QPLGN0561CEZZ	J	Plug, 5-pin(TP2001-5)	AB
RMC2601	RRMCU0222CEZZ	J	R/C Receiver	AL
	or			
	RRMCU0227CEZZ			
	or			
	RRMCU0235CEZZ			

✱1		0222CE	0227CE	0235CE
COMB NATION	R2608	USE	——	USE
	R2602	——	——	USE
	R2603	USE	——	——
	R2604	——	——	USE
	R2605	USE	USE	——
	R2606	——	USE	——
	R2607	——	USE	——
	R2601	10	330	330
	C2601	47u(16V)	4.7u(50V)	4.7u(50V)

RDA501	PRDAR0280PEFW	R	Heat Sink, for IC501	AF
RDA604	PRDAR0233PEFW	R	Heat Sink, for Q602	AK

Ref. No.	Part No.	★	Description	Code

PWB-A: DUNTKA450WEV3
MAIN UNIT (Continued)

RDA701	PRDAR0265PEFW	R	Heat Sink, for Q701	AD
	TLABN0101GJZZ	X	Label	AE
	LX-BZ3049GEFD	J	Screw	AA
	LX-BZ3100CEFD	J	Screw	AA
	LX-TZ3004CEFD	J	Screw	AA

Ref. No.	Part No.	★	Description	Code

PWB-B: DUNTK9510WEV1
CRT UNIT

TRANSISTORS

Q851	VS2SC3198-Y-1	J	C3198-Y	AA
Q852	VS2SC3789//2E	J	C3789	AF
	or			
	VS2SC3619LB1E			
Q853	VS2SC3198-Y-1	J	C3198-Y	AA
Q854	VS2SC3789//2E	J	C3789	AF
	or			
	VS2SC3619LB1E			
Q855	VS2SC3198-Y-1	J	C3198-Y	AA
Q856	VS2SC3789//2E	J	C3789	AF
	or			
	VS2SC3619LB1E			
Q881	VS2SA1266-Y-1	J	A1266-Y	AA

DIODES

D881	VHD1SS119//-1	J	Diode	AB
D882	VHD1SS119//-1	J	Diode	AB
D884	VHD1SS119//-1	J	Diode	AB

COIL

L851	VP-MK820K0000	J	Peaking 82µH	AB

CAPACITORS

[EL.··· Electrolytic]

C851	VCCSPA1HL391J	J	390p	50V	Ceramic	AA
C852	VCCSPA1HL331J	J	330p	50V	Ceramic	AA
C853	VCCSPA1HL391J	J	390p	50V	Ceramic	AA
C854	RC-KZ0024CEZZ	J	0.001	2kV	Ceramic	AC
	or					
	VCKYPB3DE472Z	J	0.0047	2kV	Ceramic	AC
C883	VCEA0A1HW106M	J	10	50V	EL.	AB

RESISTORS

[M-Ox.··· Metal Oxide]

R851	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R852	VRD-RA2BE181J	J	180	1/8W	Carbon	AA
R853	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
R855	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R856	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
⚠ R857	VRS-VV3LB123J	J	12k	3W	M-Ox.	AB
R858	VRD-RM2HD222J	J	2.2k	1/2W	Carbon	AA
R859	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R860	VRD-RA2BE181J	J	180	1/8W	Carbon	AA
R861	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
R863	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R864	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
⚠ R865	VRS-VV3LB123J	J	12k	3W	M-Ox.	AB
R866	VRD-RM2HD222J	J	2.2k	1/2W	Carbon	AA
R867	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R868	VRD-RA2BE181J	J	180	1/8W	Carbon	AA
R869	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
R871	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R872	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
⚠ R873	VRS-VV3LB123J	J	12k	3W	M-Ox.	AB
R874	VRD-RM2HD222J	J	2.2k	1/2W	Carbon	AA
R881	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R882	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R883	VRD-RA2BE561J	J	560	1/8W	Carbon	AA
R884	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R895	VRD-RA2BE470J	J	47	1/8W	Carbon	AA

MISCELLANEOUS PARTS

P851	QPLGN0541CEZZ	J	Plug, 5-pin(GBN)	AB
P852	QPLGN0441CEZZ	J	Plug, 4-pin(YBN)	AB
SC851	QSOCV0937CEZZ	J	CRT Socket	AL

Ref. No.	Part No.	★	Description	Code

PWB-H: DUNTK9310WEV2
FRONT A/V UNIT

MISCELLANEOUS PARTS

J1001	QJAKE0053GEZZ	J	Jack, Video-In	AD
J1003	QJAKE0055GEZZ	J	Jack, Audio-In	AD
P1001	QPLGN0541CEZZ	J	Plug, 5-pin(HA)	AB

MISCELLANEOUS PARTS

⚠ ACC701	QACCD3096CESA	X	AC Cord	AK
SP1	VSP0080PBL4YS	X	Speaker, 32 ohm	AH
	QCNW-0133MEZZ	X	Connecting Cord	AE
	QCNW-0135MEZZ	X	Connecting Cord	AF
	QCNW-0166MEZZ	X	Connecting Cord	AE
	QCNW-0167MEZZ	J	Connecting Cord	AE

SUPPLIED ACCESSORIES

	RRMCG1339CESB	X	Infrared R/C Unit	AQ
	TiNS-7288GJZZ	X	Operation Manual	AG

PACKING PARTS
(NOT REPLACEMENT ITEM)

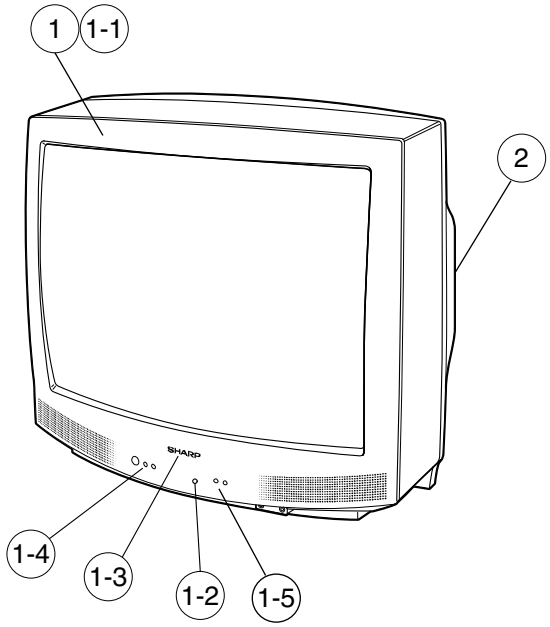
SPAKC0211GJZZ	–	Packing Case	—
SPAKP0108GJZZ	–	Wrapping Paper	—
SPAKX0120GJZZ	–	Buffer Material	—
SSAKA0101GJZZ	–	Polyethylene Bag	—

Ref. No.	Part No.	★	Description	Code

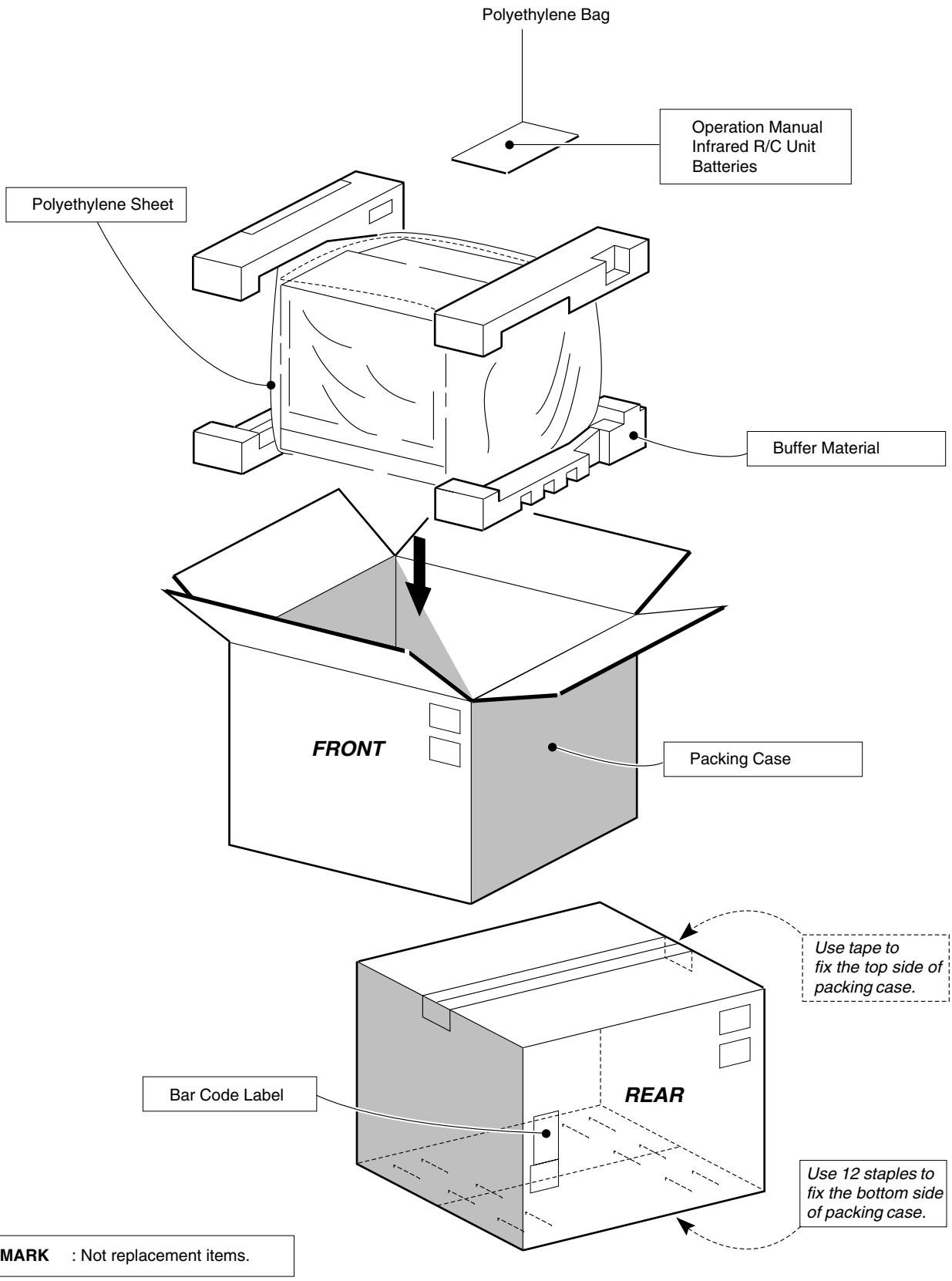
CABINET PARTS

1	CCABA0142WEH0	X	Front Cabinet Ass'y	BB
1-1	*Not Available*	–	Front Cabinet	—
1-2	GCOVA0108GJKA	X	R/C Cover	AG
1-3	HBDGB1008MESB	X	"SHARP" Badge	AE
1-4	JBTN-0107GJKB	X	Button, Power , Vol-up/down	AH
1-5	JBTN-0108GJKB	X	Button, CH-up/down	AH
2	GCABB0108GJKA	X	Rear Cabinet	AZ

CABINET PARTS LOCATION



PACKING OF THE SET



MARK : Not replacement items.

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